

REMARKS

In the Office Action mailed on September 17, 2008, all of pending claims 1-7, 9-23, and 25-27 were rejected under 35 U.S.C. 103. Reconsideration of the allowability of the pending claims is respectfully requested in view of the remarks that follow and the 2008 precedential Board decision of *Ex parte Whalen II*.¹

The Present Invention

The present invention provides a coating composition suitable for food-contact coatings of food or beverage cans. In preferred embodiments, the coating composition of the invention is particularly suited for use as a coating on a beverage can end. Beverage can ends are typically formed by coating a flat metal substrate on at least one surface with a coating composition, which is then cured to form a crosslinked coating. The cured substrate is then deformed, typically via stamping, into a riveted beverage can end that includes a rivet for attaching a pulltab thereto for purposes of opening a scored spout portion of the beverage can end. The contour of the rivet on a beverage can end is much more extreme than any contour typically present on a can end. To be suitable for use with such a riveted beverage can end, a coating should exhibit suitable flexibility and adhesion to accommodate the severity of rivet fabrication, while also preferably exhibiting suitable corrosion resistance and feathering properties. Conventional can coatings typically do not possess the balance of properties required for this demanding end use.

In a preferred embodiment, the coating composition of the invention includes a special blend of polyesters that includes between about 60 and 90 weight percent of polyester resin having a Tg less than 50°C and between about 10 and 40 weight percent of polyester resin having a Tg greater than 50°C. None of the cited references discussed below disclose a coating composition including this blend.

35 U.S.C. 103 Rejections

Claims 1-7, 9-23 and 25-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/47974 (“Heyenk”) as evidenced by U.S. 6,235,102 (“Parekh”) and an article from the Journal of Polymer Science (“Fakirov”).

¹ *Ex parte Thomas J. Whalen II, Chinh H. Tran, Noah M. Roth, and Richard J. Greff*, Appeal 2007-4423, Application 10/281,142, Decided July 23, 2008.

a. Claims 1-21 and 25-27

Independent claims 1 and 20 recite a can (claim 1), or method of making a can (claim 20), in which at least one body or end portion is coated with a coating composition that includes a blend of polyesters including between 60 and 90 weight percent of polyester resin having a Tg less than 50°C and between 10 and 40 weight percent of polyester resin having a Tg greater than 50°C. In other words, preferred polyester blends of the invention include a majority of “low” Tg polyester and a minority of “high” Tg polyester. In contrast, Heyenk teaches blends containing a minority of “low” Tg polymer and does not disclose any blends including a polyester with a Tg greater than 50°C.

One can appreciate the differences between the blends of the Heyenk reference and those of the instant application by comparing the respective worked examples disclosed therein. A Table is included below which illustrates these differences. Applicants constructed the table after carefully studying the Heyenk worked Examples and carefully calculating the weight percentages, based on total polyester solids, of the various polyester materials included in the worked examples of Heyenk and the instant application.

Example ⁽²⁾	Wt-% “Low” Tg Polyester	Tg of “Low” Tg Polyester	Wt-% “Medium” Tg Polyester	Tg of “Medium” Tg Polyester	Wt-% “High” Tg Polyester	Tg of “High” Tg Polymer
Heyenk 1	15	-15°C	85	50°C	--	--
Heyenk 3	23	-15°C	77	50°C	--	--
Heyenk 5	37	-15°C	63	45°C	--	--
Heyenk 7	32	-14/-15°C ³	68	49°C	--	--
Valspar 8A ⁽⁴⁾	85	16°C	--	--	15	85°C
Valspar 8B	85	5.9°C	--	--	15	66.2°C
Valspar 8C	85	13.5°C	--	--	15	66.2°C
Valspar 8D	85	15.9°C	--	--	15	66.2°C
Valspar 8E	85	5.8°C	--	--	15	66.2°C
Valspar 8F	85	26.6°C	--	--	15	66.2°C
Valspar 8G	85	? ⁽⁵⁾	--	--	15	66.2°C
Valspar 8H	85	15.9°C	--	--	15	66.2°C
Valspar 8I	85	15.9°C	--	--	15	66.2°C
Valspar 8J	64	15.3°C	--	--	36	66.2°C

As illustrated in the Table, the Heyenk blends and those of the instant invention are markedly different. In particular, none of the polyester blends of the Heyenk worked examples include a polyester having Tg greater than 50°C. Moreover, the Heyenk blends include a substantial majority (63-85 wt-%) of “medium” Tg polyester and a substantial minority (15-37 wt-%) of “low” Tg polyester. Notably, the Heyenk blends include, on average, three-fold less “low” Tg polyester than the examples of the instant application.⁶

² Examples 2, 4, 6, and 8 of Heyenk were omitted from the Table because the coating compositions of these Examples are the same, respectively, as those of Examples 1, 3, 5, and 7.

³ Example 7 is disclosed in Heyenk as being a mix of the polyester of Experiment III and the “high solid” polyester resin of Experiment III. Since the term “high solid” was used in Heyenk only in conjunction with the low Tg polyesters of Experiments II and IV, Applicants presume that the “high solid” polyester resin of Experiment III was in actuality either the low Tg polyester of Experiment II (-15°C Tg) or the low Tg polyester of Experiment IV (-14°C Tg).

⁴ The Tg values for Toyoba Vylon GK-330 (16°C Tg) and Unitika Elitel UE-9800 (85°C Tg) are not provided in the specification. The Tg values listed in the Table for these materials were obtained from a commercial supplier of the materials.

⁵ The Tg of the “low” Tg polymer used in Example 8G was not provided in the specification.

⁶ The Heyenk blends included, on average, 26.8 wt-% of “low” Tg polymer and 73.2 wt-% of “medium” Tg polymer, whereas the “high” Tg/“low” Tg blends of the instant application included, on average, 82.9 wt-% of “low” Tg polymer and 17.1 wt-% of “high” Tg polymer.

Nonetheless, the Office Action asserts it would have been obvious to (i) optimize the Heyenk ratio of “medium” Tg to “low” Tg polymers to find the best balance between durability and flexibility and (ii) use a polyester having a Tg greater than 50°C because there is only a “slight” difference in the Tg values of the “medium” Tg polymers disclosed in Heyenk and the “high” Tg polyesters recited in the instant claims. In particular, the Office Action at page 6 alleges that “[t]he optimization of the invention recited by Heyenk would have resulted in a polymer blend comprising 25 wt % high Tg polyester and 75 wt % low Tg (less than 10°C) polyester.” Applicants traverse the rejection as being based on impermissible hindsight.

It is respectfully submitted that the fact pattern here is analogous to that of the 2008 precedential Board decision of *Ex parte Whalen II* in which an optimization-based obviousness rejection was overturned.⁷ In *Ex parte Whalen II*, the Examiner had rejected claims reciting an embolizing composition having a viscosity greater than 140 cSt at 40°C as being obvious over prior art references that disclosed embolizing compositions that included all the ingredients of the claimed composition, but suggested that a lower viscosity was desirable (e.g., through disclosure of a “preferred” composition having a viscosity of 75 cSt at 40°C⁸). The difference in viscosities was important because high viscosity embolizing compositions can be more precisely located in vasculature and without the migration drawbacks associated with the low viscosity compositions. In rejecting the claims, the Examiner asserted that a skilled artisan would have been motivated to optimize the viscosity of the prior art compositions to the level recited in the claims “because he would have had a reasonable expectation of success in achieving the safest clinical outcome and avoiding transvenous passage.”⁹ The Board reversed, noting that “the Examiner has not pointed to any teachings in the cited reference, or provided any explanation based on scientific reasoning, that would support the conclusion that those skilled in the art would have considered it obvious to “optimize” any of the prior art compositions by increasing viscosity.”¹⁰

⁷ *Ex parte Thomas J. Whalen II, Chinh H. Tran, Noah M. Roth, and Richard J. Greff*, Appeal 2007-4423, Application 10/281,142, Decided July 23, 2008.

⁸ The Evans reference cited by the Examiner in *Ex parte Whalen II* disclosed a “preferred” composition that had a viscosity that corresponded to less than 75 cSt at 40°C.

⁹ See *Ex parte Whalen II* at pages 13-14.

¹⁰ *Id.* at page 14.

It is respectfully submitted that the fact pattern of the instant rejection is analogous to that in the *Whalen II* decision. In *Whalen II* preferred prior art compositions had a low viscosity and the claims at issue recited a high viscosity composition, whereas in the instant case, the Heyenk reference teaches coating compositions preferably having a minority of “low” Tg polymer¹¹ and claims 1 and 20 recite a composition having a majority of “low” Tg polyester. In other words, in both fact patterns, the prior art, through the teaching of preferred compositions, taught the desirability of a composition attribute that was the opposite of the claimed composition.

Moreover, it is submitted that the asserted motivations for modifying the prior art compositions in both the instant obviousness rejection and that of *Whalen II* are similarly based on unsupported hindsight, and therefore, similarly deficient. As discussed above, in *Whalen II* the Examiner asserted that a skilled artisan would have been motivated to increase the viscosity of the prior art compositions through optimization “‘because he would have had a reasonable expectation of success in achieving the safest clinical outcome and avoiding transvenous passage,’” whereas in the instant Office Action, the asserted motivation for altering the Heyenk composition is to “‘increase the durability’”¹² of the coating. In view of the Heyenk disclosure, it is unclear why a skilled artisan would have considered the durability of the Heyenk coating to be deficient, let alone why a skilled artisan would have looked to use a polyester blend with a majority of “low” Tg polyester, especially given that the Heyenk reference teaches the desirability of compositions having a minority of “low” Tg polymer. Notably, the Heyenk reference discloses that the coating compositions described therein are suitable for a variety of applications, including packaging applications, and does not mention any durability problems.¹³

Thus, for the foregoing references, it is respectfully submitted that independent claims 1 and 20 are not obvious in view of the Heyenk reference.

Turning to the Parekh reference, it would appear that the Office Action cited Parekh only with respect to dependent claims 16 and 17, which recite the presence of an acrylate copolymer in the coating composition. The Office Action mailed on February 19, 2008 acknowledged that

¹¹ At page 3, Heyenk teaches that “preferably” at least 50% of the polymers have a Tg higher than 45°C and all of the Heyenk worked examples include a substantial minority of low Tg polymer.

¹² See the Office Action at item 4 of page 5.

¹³ See Heyenk at page 8, lines 24-31, where it states that “[t]he coatings according the invention are suitable for use as interior and exterior coatings and can be used for example as coatings for beer cans, beverages (‘2 and 3 piece’), spray cans, can ends”

Heyenk “is silent regarding the addition of an acrylate copolymer having glycidyl groups” and looked to Parekh to overcome this deficiency. Even if the proposed combination were made¹⁴, however, the resulting coating composition would not include all the features of independent claim 1 from which claims 16 and 17 depend. For example, neither reference discloses a composition including a blend of two or more polyesters having a polyester with a Tg greater than 50°C. It is accordingly submitted that claims 16 and 17 are allowable over the combination of Heyenk and Parekh.

With regards to the Fakirov reference, it would appear that the Office Action cited Fakirov only for the purpose of introducing evidence that “it is well known in the polymer art that increasing the glass transition temperature of a polymer increases the hardness of the polymer.”¹⁵ As discussed above, claims 1 and 20 are not obvious in view of Heyenk. Even if the proposed combination of Heyenk and Fakirov were made¹⁶, the resulting composition would not include all of the features of claims 1 and 20. For example, neither reference discloses a composition including a blend of two or more polyesters having a polyester with a Tg greater than 50°C.

For the reasons discussed above, it is respectfully submitted that claims 1-21, 26, and 27 are allowable over the cited references.

b. Claims 22-23 and 25

Independent claim 22 recites a coating composition that is capable of passing the beverage end fabrication test recited therein. As acknowledged by the Office Action, none of the pending claims are anticipated by Heyenk.¹⁷ Item 13 of the Office Action, however, asserts that “[s]ince the optimized composition recited by Heyenk is the same as that recited by applicant it is the examiner’s opinion that it would inherently pass the same amount of current as recited by applicant in claim 22.” As discussed above in conjunction with claims 1 and 20, insufficient evidence has been offered under the precedential Board decision *Ex parte Whalen II* to establish that a person of ordinary skill in the art would have been motivated to modify the Heyenk coating

¹⁴ Applicants do not concede that a person of ordinary skill in the art would have been motivated to make the proposed combination.

¹⁵ See Item 4, page 4 of the Office Action.

¹⁶ Applicants do not concede that a person of ordinary skill in the art would have been motivated to make the proposed combination.

¹⁷ See Item 7 of the Office Action at page 9.

composition to produce the “optimized” coating composition proposed by the Office Action. As such, it is moot whether the “optimized” Heyenk coating composition would be capable of passing the test recited in independent claim 22. It is accordingly submitted that claims 22-25 are in condition for allowance.

Conclusion

In view of the foregoing, Applicants respectfully submit that all of pending claims 1-7, 9-23, and 25-27 are in condition for allowance. A notice to that effect is respectfully requested. The Commissioner is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 50-2070.

Respectfully submitted,

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